

Remarks

Applicant respectfully requests an extension of time to respond to the Office Action.

Filed herewith is a Request for Extension of Time Pursuant to 37 CFR 1.136a.

Claims 1-17 are pending in the application, claims 14-17 having been added in this Amendment. Claims 1-13 stand rejected under 35 USC 103(a) and 112, second paragraph. In addition, the Title stands objected to.

This Response addresses the issues pointed out by the Examiner in the Office Action and it is believed, places the Application in condition for allowance, wherefore such action is respectfully solicited.

The Title

Applicant respectfully traverses the objection to the Title. Nevertheless, Applicant has amended the Title to include additional descriptive language indicative of the present invention. Thus, the Examiner is respectfully requested to withdraw the objection to the Title.

Claims 1-13 -- 35 USC 112, second paragraph

The rejection of claims 1-13 under 35 USC 112, second paragraph is respectfully traversed.

It is Applicant's belief that the term "predetermined" is not indefinite. However, to reduce the matters at issue and expedite prosecution of the present application, Applicant has amended claim 1 to remove "predetermined". Applicant has additionally amended claim 1 to more particularly point out and distinctly claim the claimed invention by inserting "being recovered ..." in lines 2-3 and similar language in lines 8-9. These amendments have been made solely in view of the 35 USC 112 rejection and not in view of the cited prior art.

In view of the amendments to claim 1, the Examiner is respectfully requested to withdraw the rejection of claims 1-13 under 35 USC 112.

Claims 1-13 -- 35 USC 103(a)

The rejection of claims 1-13 as obvious in view of Bender '490 (US Patent No. 5,232,490) or Canada 770058, each taken with Pazdej '777 (US Patent No. 4,332,777) is respectfully traversed.

The present invention provides a process for recovering metal values wherein a metal containing material is digested in a sulfuric acid solution comprising: sulfuric acid; a reducing agent; and a carbon source. While not wishing to be bound by any theory, it is believed that the reducing agent reacts with certain metals, e.g., uranium, chromium and /or arsenic that may be present in the metal containing material to reduce the uranium, chromium and/or arsenic to a lower oxidation states where they are less soluble. The carbon source acts as a catalyst for the reducing reaction. As a result of the lowered solubility of the uranium, chromium and/or arsenic metal values, the amount of uranium, chromium and/or arsenic in the liquid phase is reduced, allowing enhanced recovery of other metal values, such as tantalum and/or niobium, solubilized by the sulfuric acid solution. In embodiments of the present invention where the sulfuric acid solution further comprises hydrofluoric acid, the presence of free fluoride ion from the hydrofluoric acid may result in the precipitation of uranium as UF₄.

Bender '490 relates to an oxidation/reduction process for recovery of precious metals from refractory ores. In the disclosed process a carbonaceous material may be added to a refractory feed and/or leach liquor as a reductant to reduce insoluble MnO₂ that is associated with the precious metals in the refractory ore to soluble MnCl₂ or MnSO₄.

In contrast, the process of the present invention utilizes a reducing agent and a carbon source. Bender '490 contains no disclosure relating to a process for recovering metal values which utilizes a reducing agent and a carbon source. Thus, Bender '490 would fail to suggest the presently claimed processes to one of ordinary skill in the art.

Canada 770058 discloses a process for recovering vanadium from a concentrate containing vanadium values. In the disclosed process, the carbon content of the concentrate is increased to provide a reactive carbon content sufficient to produce, upon reaction with a sulfuric acid leaching medium, a reducing gas. In contrast, in the process of the present invention utilizes

a reducing agent and a carbon source. Thus, like Bender '490, Canada 770058 fails to disclose, teach and/or suggest the presently claimed processes

Pazdej discloses a process for the hydrometallurgical treatment of metallurgical dust. Pazdej does not disclose or suggest the use of a carbon source or a reducing agent in the disclosed process. Pazdej also fails to disclose or suggest the use of a carbon source or reducing agent. Therefore, Pazdej fails to disclose or suggest the present claims.

Further, the combination of Pazdej and Canada 770058 or Bender '490 fails to suggest a process wherein a reducing agent and a carbon source are utilized in conjunction as contemplated by the present claims. Therefore, the combination of Pazdej, Canada 770058 and Bender '490 fails to disclose or suggest the processes set forth in claims 1-13 and the Examiner is respectfully requested to withdraw the rejection of these claims under 35 USC 103(a) as obvious in view of Bender '490 or Canada 770058, each taken with Pazdej '777.

Claims 1-13 -- 35 USC 103(a)

The rejection of claims 1-13 as obvious over Foos '453 (US Patent No. 2,953,453) taken with either Gustison '511 (US Patent No. 3,658,511) or Meyer '389 (US Patent No. 4,309,389) is respectfully traversed.

Foos '243 relates to a process for recovering columbium (niobium) values from ores. In the process disclosed in Foos '243 a ground fused ore is leached with a mineral acid. A reducing agent may be added to a leach solution to convert manganese to a soluble form. Foos '243, Col. 3, line 4. In contrast, as discussed above, the presently claimed processes utilize a reducing agent to render a metal value (e.g. uranium) insoluble. Thus Foos '243 teaches away from the presently claimed processes.

In addition, Foos '243 does not disclose or suggest the use of a carbon source in the disclosed leach solution. Nor does Foos '243 disclose that the ores being processed include carbon.

The Examiner is respectfully requested to provide support for the "Official Notice" position that an ore may contain carbon. Further, although the Examiner takes "Official Notice"

that an ore may contain carbon, the present claims specify the presence of a carbon source in a sulfuric acid solution.

For all of these reasons, Foos '243 fails to disclose, teach or suggest the processes set forth in the present claims.

Gustison '511 and Meyer '389 are relied on by the Examiner as disclosing a solution comprising sulfuric acid and hydrofluoric acid. However, neither Gustison '511 or Meyer '389 cure the deficiencies of Foos '243 as a reference against the present claims. In particular, neither Gustison '511, nor Meyer '389, disclose or suggest the use of a carbon source in combination with a reducing agent in a sulfuric acid solution for digesting a metal containing material. In addition, neither Gustison '511 or Meyer '389 disclose or suggest the use of a reducing agent for rendering a soluble species insoluble.

For these reasons, the combination of Foos '243 and Gustison '511 or Meyer '389 fails to disclose or suggest the present claims and the Examiner is respectfully requested to withdraw the rejection of claims 1-13 under 35 USC 103 as obvious in view of these references.

New Claims 14 - 17

Applicant has added new claims 14-17 to provide claim coverage on certain embodiments of the present invention. It is respectfully submitted that Claims 14-17 are allowable over the art of record.

Conclusion

All of the rejections of the Examiner having been met and overcome, Notice of Allowance is respectfully solicited. The Examiner is respectfully invited to contact the undersigned at 910.607.7315 to discuss any matter relating to the application.

Respectfully submitted



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